THE MATTABASSETT DISTRICT

NEW BRITAIN - BERLIN - CROMWELL
REGIONAL SEWER AUTHORITY

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May 13, 2015

Compliance Clerk
Mailcode: OES04-2
Air Technical Unit
U.S. EPA Region 1
1 Congress Street (SEA)
5 Post Office Square, Suite 100
Boston, MA 02109

Re: **The Mattabassett District Water Pollution Control Facility**
FBI Stack Test
Operating Parameters Monitored

To Whom It May Concern:

The Mattabassett District (MD) owns and operates The Mattabassett District Water Pollution Control Facility (MDWPCF) located at 245 Main Street, Cromwell, CT. Mattabassett District is currently constructing a new Infilco Degremont Inc. fluidized bed sewage sludge incinerator (SSI) at the facility, pursuant to Permit to Construct and Operate No. 043-0030 issued by the CT Department of Energy & Environmental Protection (CTDEEP).

Per your conversation with Melissa Hamkins on May 11, 2015, a list of the parameters which will be measured during the stack test is attached to this letter. This list has been broken into two groups – one, those parameters which are required by permit and the District's monitoring plan (see below); and two, additional parameters which are being collected as part of the performance testing which includes the stack testing (see attached).

These parameters were not part of the stack testing protocol from Gammie Air Monitoring, LLC because they did not provide the instruments which measure these parameters. These parameters are being measured by the SCADA system or manually recorded by the District/FBI system supplier and will be included in Gammie's stack test report.

Permit/Monitoring Plan Required Parameters Measured During the Stack Test:

1. CEMs system at stack: Stack O_2, CO, and NOx

2. Incinerator Operating Temperature in the Combustion Chamber and outlet of incinerator:

a. Four temperature elements in the sand bed (TIT-4032 A/B/C/D) are averaged for a bed temperature (T-4032).
b. Four temperature elements in the overbed (TIT-4034 A/B/C/D) are averaged for a bed temperature (T-4034).
c. The outlet is measured (TIT-4261A).

3. Wet Scrubber
   a. Pressure drop across the scrubber: PDIT-4572A
   b. Scrubber liquid flow rate:
      i. Water flow to the Quencher (FE/FIT6471A)
      ii. Water flow to the scrubber trays (FE/FIT 6472B)
      iii. Water flow to the venturi throat (FE/FIT-6475)
      iv. Water flow to the venturi inlet (FE/FIT-6474)
   c. Scrubber liquid pH: AIT-4771

4. WESP
   a. Secondary Voltage and amperage of the WESP collection plates
   b. Water flow rate at the inlet of the WESP: FIT-4639

5. Moisture Content of stack exhaust gas will be calculated from the Carbon Conditioner inlet temperature as this is the last location where the gas is saturated. (TIT-4291)

6. Ash handling fugitive emissions
   a. The District will use their alternate monitoring system for fugitive ash and will document that the ash in the ash lagoons remains wet.

7. Feed Rate and moisture content of sludge fed to the SSI
   a. Feed rate measured by sludge cake pump – Putzmeister pump piston measurements
   b. Moisture content: hourly samples of sludge cake which will be analyzed for solids content.

8. Carbon Adsorption system
   a. Temperature differential across Conditioner: TDIC-4281
   b. Pressure drop across the Carbon Adsorber: PDIT-4993
   c. Carbon monitoring will be done according the monitoring plan and will not done during the stack test
   d. Temperature Drop across the Carbon Bed: calculated from TIT-4292 bed inlet and TIT-4293 bed outlet. The temperature drop will be calculated from these

9. Fuel Use:
   a. Natural Gas use will be measured and totalized (FIT-7431)
   b. Ultra Low Sulfur Fuel Oil will be measured and totalized (FIT-2430)

I hope this additional information is helpful in your review of our request. Should you have any questions or need additional information, please contact Melissa Hamkins at (207) 798-3738.

Sincerely,

Brian W. Armet

Brian W. Armet, PE
Executive Director, Mattabassett District

Melissa Hamkins

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Preparer of letter

cc. Steve Rapp, EPA
Lakiesha Christopher, CTDEEP
Keith Hill, CTDEEP
Raquel Herrera, CTDEEP
Michelle Ryan, Mattabassett District

Attachments
1. List of Parameters collected during performance test.

001 02 and 001 03. IDI Process Engineers shall establish the design air flow rates and adjust operations to optimize performance. During the tests, the operating data listed below shall be logged from the PLC at 1 hour intervals. Sample collection shall coincide with data logging intervals.

FAB air to E4261 Flow Rate	scfm	FI-4162-G		Roof Spray Water Pressure	psig	PIT-4642
Fluidizing Air Blower Discharge Pressure	psig	PIT-4161		Roof Spray Water Flow	scfm	FIT-4642
Fluidizing Air Blower Discharge Temperature	° F	TIT-4161		Ammonia Spray Flow Rate	gpm	FI-4824-A
Primary Heat Exchanger Air Outlet Temperature	° F	TIT-4163A		Incinerator Flue Gas Outlet Temperatures	° F	TIT-4261A
Primary Heat Exchanger Air Pressure Drop	"WG	PDIT-4161		Primary Heat Exchanger Flue Gas Inlet Temperature	° F	TIT-4261C
Windbox Temperature	° F	TIT-4031-A		Primary Heat Exchanger Flue Gas Pressure Drop	"WG	PDIT-4261
Windbox Pressure	psig	PIT-4061-A		Secondary Heat Exchanger Flue Gas Outlet Temperature	° F	TIT-4263
Dome Pressure Drop	"WG	PDIT-4061-B		Secondary Heat Exchanger Flue Gas Pressure Drop	"WG	PDIT-4262
Bed Pressure	psig	PIT-4061-C		Secondary Heat Exchanger Flue Gas Outlet Oxygen Percentage	%	AIT-4263
Bed Height	"WG	PDIT-4061-D		Secondary Heat Exchanger Flue Gas Air Outlet Temperature	° F	TIT-3964

Bed Temperatures	° F	TIT-4032-A		WESP Gas Outlet Temperature	° F	TIT-4291
Bed Temperatures	° F	TIT-4032-B		WESP Gas Outlet Pressure	"WG	PIT-4291
Bed Temperatures	° F	TIT-4032-C		Quencher Water Flow	gpm	FIT-6471-A
Bed Temperatures	° F	TIT-4032-D		Quencher Exit Temperature	° F	TIT-4571
Bed Temperatures	° F	TIT-4033		Quencher / Scrubber Pressure Drop	"WG	PDIT-4572-A
Bed Temperature Average	° F	4032		Scrubber Venturi Pressure Drop	"WG	PDIT-4572-B
Sludge Feed Rate to Bed	gpm	Sludge Pump		Scrubber Gas Outlet Temperature	° F	TIT-4272
Sludge Feed Totalizer	gal	Sludge Pump		Scrubber Outlet Pressure	"WG	PIT-4572
Natural Gas Flow to Preheat Burner	scfm	FIT-7420		Scrubber Water Flows	gpm	FIT-6474
Natural Gas Flow to Gas Guns	scfm	FIT-7431		Scrubber Water Flows	gpm	FIT-6475
Natural Gas Usage Totilizer	scfm	7431		Scrubber Water Flows	gpm	FIT-6472-A
Natural Gas Supply Pressure	psig	PIT-7420		Scrubber Water Flows	gpm	FIT-6472-B
Purge Air Pressure	psig	PIT-4333-A		Scrubber pH Reading	pH	AIT-4771
Fuel Oil Flow	gph	FIT-2430		Caustic Flow Rate	gph	pump 20-CMP
Fuel Oil Pressure	psig	PIT-2430		Caustic Usage Totalizer	gal	pump 20-CMP
Lower Freeboard Temperature	° F	TIT-4034-D		GAC Conditioner Pressure Drop	"WG	PDIT-4991
Freeboard Pressure	psig	PIT-4061-E		GAC Adsorber Pressure Drop	"WG	PDIT-4993
Upper Freeboard Temperatures	° F	TIT-4034-A		GAC Adsorber Outlet Temperature	° F	TIT-4293
Upper Freeboard Temperatures	° F	TIT-4034-B		Plume Suppression Fan Flow	scfm	FIT-3963

Upper Freeboard Temperatures	° F	TIT-4034-C TIT-4034-D		Plume Suppression Fan Outlet Pressure	"WG	PIT-3963
Upper Freeboard Temperature Average	° F	4034		Plume Suppression Fan Outlet Temperature	° F	TIT-3963
Overbed Air Pressure	psig	PIT-3811		Stack Oxygen Level	%	CEMS
Overbed Air Temperature	° F	TI-3802		Stack CO Level	ppm	CEMS
Overbed Air Flow Rate	scfm	FIT-3811		Stack NOx Level		CEMS
FAB Air to E4163 flow rate	scfm	FI-4162-A		FAB Air to E4263	scfm	FI-4162-M
Ammonia flow rate	gpm	FI-4825-A		Ammonia flow rate	gpm	FI-4826-A
Ammonia Flow rate	gpm	FI-4827-A		Ammonia flow rate	gpm	FI-4828-A
Ammonia Flow Rate	gpm	FI-4829_A		Primary Heat Exchanger Flue Gas Inlet Temperature	° F	TIT-4261-B
Primary Heat Exchanger Flue Gas Inlet Temperature	° F	TIT-4261C		Potable Water to WESP	GPM	FIT-4639
WESP Secondary Voltage	Volts	EIT-5139G		WESP Secondary Amperage	Amps	IIT-5139H

III. **<u>Preliminary Acceptance Testing Procedure</u> -** Preliminary Acceptance Testing is run to demonstrate proper operation of all systems and controls including start-up and shutdown sequences.

1. Testing consists of (3) sets of five consecutive days of test runs with one to two days off between each the five day tests.
2. The system is to be run for 24 hours per day.
3. Sludge feed rate will be set between 1.0 and 1.5 dtph for these tests as described in the Preliminary Testing Notes.
4. The sludge feed rate during this test will be determined using a mass balance calculation around the reactor boundary using fluidization air flow, purge air flow and natural gas (or fuel oil) flow into the reactor. Sludge total solids and percent volatile should also be entered into the reactor mass balance as part of the sludge